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CLAIMS

1. A substantially isolated dimer comprising first and second polypeptides, wherein each of said polypeptides comprises the extracellular domain portions of the HLA-B27 heavy chain and said first and second polypeptides are cross-linked to each other via said extracellular domain portions and are capable of binding an HLA-B27 epitope,

or a substantially isolated functional dimeric or multimeric analogue thereof which is capable of binding said HLA-B27 epitope and/or competes for binding to a specific receptor for said dimer.

Sub A1

2. A dimer according to claim 1 in which the polypeptides are linked by a disulphide bond between a cysteine residue in the first polypeptide and a cysteine residue in the second polypeptide, said cysteine residues being functionally homologous to Cys 67 of the HLA-B27 heavy chain.

3. A dimer according to claim 1 or claim 2 in which the first and/or second polypeptide comprises residues 1 to 275 of the HLA-B27 heavy chain.

4. A dimer according to any one of the preceding claims in which the first polypeptide and/or the second polypeptide comprise at least the first two N-terminal domains of the HLA-B27 heavy chain.

5. A dimer according to claim 1 in which both polypeptides comprise residues 1 to 275 of HLA-B27 heavy chain cross-linked by a disulphide bond between Cys 67 of each polypeptide.

6. A dimer according to any one of the preceding claims in which the first polypeptide and/or the second polypeptide is linked to biotin.

7. A complex comprising biotinylated dimers as defined in claim 6 bound to fluorescently-labelled streptavidin in a molar ratio of 4:1.

8. A method of making a dimer as defined in any one of the preceding claims which comprises providing a first polypeptide and a second polypeptide as defined in any one of the preceding claims in conditions in which they cross-link.

9. A method of detecting in a sample the presence of a receptor which binds to a dimer or complex as defined in any one of claims 1 to 7 or made by a method as defined in claim 8 which comprises contacting the sample with said dimer or complex.

10. A method according to claim 9 wherein said sample comprises cells from blood or synovial fluid and binding of cells to a complex according to claim 7 is detected by a flow cytometer.

11. A method of determining the onset of, or predisposition to a spondyloarthropathy, comprising measuring the level of, or detecting the presence of, a receptor in the human or animal body which binds to a dimer or complex as defined in any one of claims 1 to 7 or made by a method as defined in claim 8.

12. A monoclonal antibody which binds a dimer as defined in any one of claims 1 to 6, but does not bind to native HLA-B27.

13. A method of determining in a sample the presence of a substance which inhibits the binding of a dimer or complex as defined in any one of claims 1 to 7 or made by a method as defined in claim 8 with an antibody as defined in claim 12 comprising:

(i) contacting said sample with said dimer or complex in the presence of said antibody; and

(ii) determining whether binding of said antibody to said dimer or complex is inhibited.

14. A method of determining in a sample the presence of a substance which inhibits the binding of a dimer or complex as defined in any one of claims 1 to 7 or made by a method as defined in claim 8 with a receptor as defined in claim 11 comprising:

(i) contacting said sample with said dimer or complex in the presence of said receptor, and

(ii) determining whether binding of said receptor to said dimer or complex is inhibited.

15. A dimer or complex as defined in any one of claims 1 to 7 or made by a method as defined in claim 8, a monoclonal antibody as defined in claim 12 or a substance determined by a method of claim 13 or 14 for use in a method of treating a spondyloarthropathy or for use as a prophylactic to prevent the onset of a spondylarthropathy.

16. A method of determining the onset of or predisposition to a spondylarthropathy which comprises measuring the level of or detecting the presence of the native homodimer of the heavy chains of HLA-B27 in the human or animal body or in a sample from the human or animal body.

17. A method according to claim 16 in which the homodimer is measured or detected by measuring its binding to an antibody as defined in claim 12.

18. An *ex-vivo* cell which expresses a dimer as defined in any one of claims 1 to 6.

19. A cell according to claim 18 which does not express β_2-microglobulin.

20. A composition for tolerising a human or animal to the native homodimer of the heavy chains of HLA-B27 which comprises a dimer or complex as defined in any one of claims 1 to 7 or made by a method as defined in claim 8, or a tolerising fragment thereof; or

a cell according to claim 18 or 19;

in association with a pharmaceutically acceptable carrier or diluent.

21. A polynucleotide which encodes a first polypeptide or a second polypeptide as defined in claim 6.

22. A transgenic animal which has been engineered to express a dimer according to any one of claims 1 to 6, wherein said dimer is not a homodimer of the native HLA-B27 heavy chain.

23. A substantially isolated T cell capable of binding a dimer according to any one of claims 1 to 6 or a complex according to claim7 or a receptor derived therefrom which retains said binding capability.

24. A method of tolerising a human or animal to the native homodimer of the heavy chains of HLA-B27 comprising administering to the human or animal a composition as defined in claim 20.